concentration of assimilable phosphorus in the fermentation broth is less than 0.15% w/v.

57. The process of claim 56 where the phosphorus concentration is maintained below a limit of 0.15% during a growth phase of the fermentation.

58. The process of claim 57 where the phosphorus concentration is allowed to decrease after cessation of the growth phase.

59. The process of claim 56 where the phosphorus concentration is allowed to decrease after a fermentation time of 40 hours.

60. The process of claim 56 where the phosphorus concentration up to a fermentation time of 40 hours is between 0.0015% and 0.15% w/v.

61. The process of claim 60 where the phosphorus concentration is between 0.002% and 0.05% w/v.

62. The process of claim 56 where no assimilable phosphorus is added after a fermentation time of 40 hours.

63. The process of claim 56 where the source of assimilable nitrogen does not include ammonia.

64. The process of claim 63 where the sole source of assimilable nitrogen is not ammonia.

65. The process of claim 56 where the source of assimilable nitrogen is flour.

66. The process of claim 56 where the source of assimilable nitrogen is ammonium sulfate.

67. The process of claim 56 where the concentration of the source of assimilable nitrogen is between 0.5% and 1.5% w/v.

68. The process of claim 56 where the starting concentration of the source of assimilable nitrogen is greater than 5% w/v.

69. The process of claim 56 where the source of assimilable phosphorus is selected from the group consisting of sodium phosphate, potassium phosphate, sodium dihydrogen phosphate, potassium dihydrogen phosphate, disodium hydrogen phosphate, dipotassium hydrogen phosphate, or a mixture thereof.

70. The process of claim 56 where the species of *Streptomyces* is *Streptomyces clavuligerus*, *Streptomyces jumonjinensis*, *Streptomyces katsurahamanus*, or *Streptomyces sp.* P6621.

71. The process of claim 56 where the process is fed batch or continuous, with intermittent or continuous addition of a source of assimilable phosphorus.

72. The process of claim 56 where the fermentation broth has a volume greater than 10,000 liters.

73. The process of claim 72 where the volume is 50,000 liters.

74. A process for production of clavulanic acid or a salt thereof comprising fermentation of a clavulanic acid-producing species of *Streptomyces* in a fermentation broth containing sources of assimilable carbon and assimilable nitrogen and assimilable phosphorus, wherein during a growth phase of the fermentation process a further source of assimilable phosphorus is added to maintain the concentration of assimilable phosphorus in the fermentation broth between 0.0015% and 0.15% w/v, and

subsequently isolating the clavulanic acid or a salt thereof from the fermentation broth.

75. The process of claim 74 where the phosphorus concentration is allowed to decrease after cessation of the growth phase.

76. The process of claim 74 where the phosphorus concentration is allowed to decrease after a fermentation time of 40 hours.

77. The process of claim 74 where the phosphorus concentration during the growth phase up to a fermentation time of 40 hours is between 0.0015% and 0.15% w/v.

78. The process of claim 77 where the phosphorus concentration is between 0.002% and 0.05% w/v.

79. The process of claim 74 where no assimilable phosphorus is added after a fermentation time of 40 hours.

80. The process of claim 74 where ammonia is not the sole source of assimilable nitrogen.

81. The process of claim 80 where the source of assimilable nitrogen does not include ammonia.

82. The process of claim 74 where the source of assimilable phosphorus is selected from the group consisting of sodium phosphate, potassium phosphate, sodium dihydrogen phosphate, potassium dihydrogen phosphate, disodium hydrogen phosphate, dipotassium hydrogen phosphate, or a mixture thereof.

83. The process of claim 82 where the source of assimilable phosphorus is sodium dihydrogen phosphate.

84. The process of claim 83 where the sodium dihydrogen phosphate is present in the fermentation broth at a starting concentration of about 0.008% w/v.

85. The process of claim 74 where the species of *Streptomyces* is *Streptomyces clavuligerus*, *Streptomyces jumonjinensis*, *Streptomyces katsurahamanus*, or *Streptomyces sp.* P6621.

86. The process of claim 74 where the process is fed batch, with intermittent or continuous addition of a source of assimilable phosphorus.

87. The process of claim 74 where the source of assimilable carbon comprises glycerol trioleate, glycerol, or corn starch, and a further source of assimilable carbon is optionally added to the fermentation broth during the fermentation.

88. The process of claim 74 where the source of assimilable nitrogen comprises soy bean flour or ammonium sulfate, and a further source of assimilable nitrogen is optionally added to the fermentation broth during the fermentation.

89. The process of claim 88 where the concentration of assimilable nitrogen is between 0.5% and 1.5% w/v.

90. The process of claim 74 where the fermentation broth has a volume greater than 10,000 liters.

91. The process of claim 70 where the volume is 50,000 liters.

92. A fed batch fermentation process for the production of clavulanic acid or a salt thereof, comprising:

(a) fermentation of a clavulanic acid-producing species of *Streptomyces* in a fermentation broth containing sources of